Docket No.: E-80044

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applic. No.	:	10/763,027	Confirmation No.: 9168
Inventor	:	Wolfgang Maus	
Filed	:	January 21, 2004	
Title	:	Honeycomb Body Having a Contraction Limiter	
TC/A.U.	:	1795	
Examiner	:	Matthew J. Merkling	
Customer No.	:	24131	

Hon. Commissioner for Patents
Alexandria, VA 22313-1450

BRIEF ON APPEAL

S i r :

This is an appeal from the final rejection in the Office action dated November 9, 2009, finally rejecting claims 1-4 and 6-29.

Appellants submit this *Brief on Appeal* including payment in the amount of $540.00 to cover the fee for filing the *Brief on Appeal*.

Real Party in Interest:

This application is assigned to Emitec Gesellschaft für Emissionstechnologie mbH of Lohmar, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-4 and 6-29 are rejected and are under appeal.

Status of Amendments:

No claims were amended after the final Office action. *A Notice of Appeal* and a *Pre-Appeal Brief Request for Review* were filed on January 28, 2010 in response to the final Office action.

Summary of the Claimed Subject Matter:

The subject matter of each independent claim is described in the specification of the instant application. Examples explaining the subject

matter defined in each of the independent claims, referring to the specification by page and line numbers, and to the drawings, are given below.

Independent claim 1 reads as follows:

Independent device claim 1 recites a honeycomb body *(Figs. 1, 2, and 4, ref. # 1, page 15, line 25)*, comprising:

a housing *(Figs. 2-4, ref. # 4, page 16, line 4)*;

a matrix *(Figs. 2-4, ref. # 5, page 16, line 5)* having an average initial diameter and connected to said housing *(Figs. 2-4, ref. # 4, page 16, line 4)*; and

at least one contraction limiter *(Figs. 3-5, ref. # 7, page 16, lines 6-7)* configured for imparting an outwardly directed tensile stress *(page 16, lines 7-11 and page 17, lines 1-15,)* in at least one part of said matrix *(Figs. 2-4, ref. # 5, page 16, line 5)* for preventing the average initial diameter *(Figs. 2 and 4, ref. # 6, page 16, lines 8-9)* of said matrix *(Figs. 2-4, ref. # 5, page 16, line 5)* from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600˚C and 1050˚C *(page 9, lines 16-17)*.

Grounds of Rejection to be Reviewed on Appeal

1. Whether or not claims 1-4, 6 and 8-27 are anticipated by Ota et al. (US 5,486,338) (hereinafter "Ota") as evidenced by Stroom et al. (US 6,245,301) (hereinafter "Stroom") and http://www.matweb.com...under 35 U.S.C. § 102(b).

2. Whether or not claim 7 is anticipated by Maus et al. (US 5,916,530) (hereinafter "Maus") under 35 U.S.C. § 102(b).

Argument:

Whether claims 1-4, 6, and 8-27 are anticipated by Ota under 35 U.S.C. §102.

Claims 1-4, 6, and 8-27 are not anticipated by Ota under 35 U.S.C. §102:

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 1 calls for, *inter alia*:

> at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of the matrix for preventing the average initial diameter of the matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600˚C and 1050˚C.

Ota explicitly discloses to provide a **cushion** member (5) such "that thermal **expansion and contraction** of the honeycomb 3 is **not constrained by the case 2** but is **absorbed** by the cushion member 5 to prevent the honeycomb 3a from being damaged or broken by thermal distortion or **stress**" (column 4, lines 26 to 29).

The only way for the cushion member of Ota to be considered a contraction limiter, as recited in claim 1 of the instant application would be by in fact **constraining** expansion and contraction of the honeycomb to impart an outwardly directed stress, as explicitly required by claim 1. However, this is explicitly the opposite of what Ota discloses with respect to the structure of the cushion member. Therefore, it is explicit that Ota does not disclose a contraction limiter, as required in claim 1 of the instant application.

On page 3 of the final Office action dated November 9, 2009, the Examiner alleges that "the initial diameter … therefore, the diameter does not decrease but rather stays the same."

The Examiner's allegation is patently wrong. Specifically, as seen from the second paragraph on page 3 of the specification of the instant application, the diameter of the matrix of a honeycomb body without contraction limiters contracts beyond the initial diameter of the matrix, which results in the barrel shape of the matrix after repeated thermal stresses. Therefore, the Examiner's allegation with respect to the diameter not decreasing, is patently wrong.

In a desperate attempt to support his position, on page 3 of the final Office action dated November 9, 2009, the Examiner makes a conclusion with respect to an expansion of the **diameter** of the matrix of Ota based on calculations with respect to the matrix of Ota by referring to a material data sheet and the Stroom reference.

The Examiner's conclusion is completely erroneous and invalid. Particularly, the Examiner provides a coefficient of expansion for the matrix body based on a grade of stainless steel suitable for decorative structural applications and not for a grade of stainless steel that is

suitable for exhaust system components. Furthermore, the Examiner does not show any calculations, instead the Examiner only provides an incorrect conclusion. Also, the Examiner relies on a diameter of a matrix of Stroom. However, it is absurd to rely on a diameter of a matrix, because the coefficient is a coefficient of linear expansion, which pertains to expansion **per unit length of the material**. Moreover, the diameter of the matrix is nowhere near the length of the foils wound to make the diameter of the matrix. However, any valid calculation for a change in matrix diameter can only begin with the length of the foils wound into the matrix, as it is the length of the foils themselves to which linear thermal expansion coefficient applies. Therefore, a coefficient of linear expansion cannot be used for calculation based solely on the diameter of a matrix. Accordingly, the calculation and conclusion by the Examiner, with respect to the expansion/contraction of an assumed diameter of the matrix of Ota are completely absurd and invalid.

On page 7 of the final Office action dated November 9, 2009, the Examiner alleges that with respect to Ota "the contraction limiters **inherently** exert an outward force on the honeycomb matrix."

MPEP § 2112 (8th edition, 1st revision) states that:

> **EXAMINER MUST PROVIDE RATIONALE OR EVIDENCE TENDING TO SHOW INHERENCY**
> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)

As discussed in MPEP § 2112, a limitation recited in a claim that is not expressly or implicitly disclosed in a prior art reference is inherently disclosed therein if, and only if, the "missing" limitation is ***necessarily present*** in the prior art, and that it would be so ***recognized by persons of ordinary skill***. The principles of inherency require that the inherency be **absolute**, and not probabilistic. As far as appellant was

able to ascertain, there is no disclosure or suggestion in *Ota* that it is ***absolutely necessary*** that the cushion members inherently exert an outward tensile force on the matrix as required by claim 1 of the instant application.

Furthermore, according to a sub-heading in MPEP § 2112, the "EXAMINER MUST PROVIDE RATIONALE OR EVIDENCE TENDING TO SHOW INHERENCY", i.e. the Examiner has the burden of proof (by a preponderance of the evidence) to show that *Ota* **necessarily** disclose or suggest purposefully that the cushion members inherently exert an outward force on the matrix. Instead of offering factual evidence disclosing or suggesting the cushion member exert an outwardly directed tensile force, in the context of the present invention, the Examiner made a statement without any factual support or *Official Notice*. The Examiner cannot simply be the devil's advocate postulating certain results or processes that may or may not occur or be present in the applied prior art and leave it up to appellant to show or prove the contrary.

Accordingly, the Examiner has not met the requirements of MPEP 2112 for inherency. Therefore, the Examiner's allegations based on inherency of Ota, are patently wrong.

As seen from the above-given remarks, Ota does not show at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of the matrix for preventing the average initial diameter of the matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600˚C and 1050˚C, as recited in claim 1 of the instant application. Ota discloses cushion members, **which do not allow expansion and contraction of the honeycomb to be constrained by the case**. This is contrary to the present invention as claimed, which recites at least one contraction limiter configured for **imparting an outwardly directed tensile stress** in at least one part of the matrix for **preventing** the average initial diameter of the matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600˚C and 1050˚C.

Since claim 1 is allowable over Ota, dependent claims 2-4, 6, and 8-27 are allowable over Ota as well.

Whether claims 1 and 7 are anticipated by Maus under 35 U.S.C. §102.

Claims 1 and 7 are not anticipated by Maus under 35 U.S.C. §102:

It is noted that the corporate assignee of the Maus reference is also the assignee of the instant application and Mr. Maus is also the applicant of the instant application. Therefore, appellant is extremely familiar with the Maus reference.

Although not explicitly listed in the rejection, it is believed that based on the Examiner's remarks in item 3 and the fact that claim 7 is dependent on claim 1, the Examiner is also rejecting claim 1 as being anticipated by Maus. Accordingly, the following remarks pertain to an anticipation rejection of claim 1 over Maus.

Maus discloses that a certain amount of time is required until a cold catalytic reactor reaches its working temperature due to the hot exhaust gases coming from an internal combustion engine. In order to improve the heating behavior, Maus discloses to provide a thermal insulation from the gas inlet side onwards over at least a part of its length with respect to the casing. The insulation prevents the casing from drawing heat from the front area of the honeycomb body directly after cold starting and consequently delaying the catalytic conversion. If exhaust gas is fed to the catalytic reactor over a certain period of time, the

casing is also heated up either through the thermal insulation or by some parts of the honeycomb body that are not thermally insulated with respect to the casing. The casing then acts as a heat store or accumulator. If hot exhaust gas is no longer fed to the reactor, the casing retains the stored heat or mainly releases it to the honeycomb body as the external insulation of the casing limits the heat loss to the outside.

On page 6 of the final Office action dated October 9, 2009, the Examiner referred to Fig. 3 of Maus. In Fig. 3, Maus discloses that there is a honeycomb body (2), which is joined to the casing (1) through the use of a connecting tube (11). The connecting tube (11) is divided into three sub-regions, namely a first sub-region (11a) adjacent the inner surface (6) of the casing (1), a second sub-region (11b) tapering conically towards the inside, and a third sub-region (11c) adjacent the honeycomb body (2). The gaps (13, 14) act as thermal insulation and thus thermally decouple the casing (1) from the honeycomb body (2). Maus discloses that when the connecting tube (11) is made sufficiently thick, for example with a thickness of 0.5 to 2 mm, it acts as a casing itself, which is insulated in the front sub-region (11c) from the honeycomb body (2) and is adjacent the honeycomb body (2) in the

rear sub-region (11a), which is advantageous for the initiation and hot-starting behavior of the catalytic reactor (column 5, lines 9-31). Therefore, Maus does not disclose to consider the barreling effect of honeycomb body. Additionally, because the gaps are very wide, the connecting tube (11) does not limit the expansion or contraction behavior of the honeycomb body. Accordingly, Maus does not disclose a contraction limiter as required in the instant application.

On page 6 of the final Office action dated November 9, 2009, the Examiner alleges that Maus discloses "at least one contraction limiter… (the limiter will inherently provide a stress to the matrix since it is attached, see col. 5, lines 5-8) for preventing the average initial diameter of said matrix from decreasing by more than 5% after repeated alternating thermal stresses in the range between 600C and 1050C."

Here again, the Examiner does not meet the above-cited requirements of MPEP 2112 related to inherency.

As discussed in MPEP § 2112, a limitation recited in a claim that is not expressly or implicitly disclosed in a prior art reference is inherently

disclosed therein if, and only if, the "missing" limitation is ***necessarily present*** in the prior art, and that it would be so ***recognized by persons of ordinary skill***. The principles of inherency require that the inherency be **absolute**, and not probabilistic. As far as appellant was able to ascertain, there is no disclosure or suggestion in *Maus* that it is ***absolutely necessary*** that the connecting tube inherently exerts an outwardly directed tensile force on the matrix, as required in claim 1 of the instant application.

Furthermore, according to a sub-heading in MPEP § 2112, the "EXAMINER MUST PROVIDE RATIONALE OR EVIDENCE TENDING TO SHOW INHERENCY", i.e. the Examiner has the burden of proof (by a preponderance of the evidence) to show that *Maus* **necessarily** disclose or suggest purposefully that the connecting tube inherently exert an outwardly directed tensile force on the matrix, as required in claim 1 of the instant application. Instead of offering factual evidence disclosing or suggesting the connecting tube exert an outward force, in the context of the present invention, the Examiner made a statement without any factual support or *Official Notice*. The Examiner cannot simply be the devil's advocate postulating certain results or processes

that may or may not occur or be present in the applied prior art and leave it up to appellant to show or prove the contrary.

Accordingly, the Examiner has not met the requirements of MPEP 2112 for inherency with respect to Maus. Therefore, the Examiner's allegations based on inherency with respect to Maus are patently wrong.

As seen from the above-given remarks, Maus does not show at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of the matrix for preventing the average initial diameter of the matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600˚C and 1050˚C, as recited in claim 1 of the instant application.

Since claim 1 is allowable over Maus, dependent claim 7 is allowable over Maus as well.

Based on the above-given remarks, the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

If an extension of time is required for this submission, petition for extension is herewith made. Any fees due should be charged to Deposit Account No. 12-1099 of Lerner Greenberg Stemer LLP.

Respectfully submitted,

/Alfred K. Dassler/
Alfred K. Dassler
Reg. No. 52,794

Date: March 29, 2010

Lerner Greenberg Stemer LLP
Post Office Box 2480
Hollywood, Florida 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101
Email: office@patentusa.com

AKD/bb

Claims Appendix:

1. A honeycomb body, comprising:

a housing;

a matrix having an average initial diameter and connected to said housing; and

at least one contraction limiter configured for imparting an outwardly directed tensile stress in at least one part of said matrix for preventing the average initial diameter of said matrix from decreasing by more than 5% after repeated thermal alternating stresses in the range between 600°C and 1050°C.

2. The honeycomb body according to claim 1, wherein said matrix is connected to said housing by said at least one contraction limiter.

3. The honeycomb body according to claim 1, wherein said at least one contraction limiter has a first end region connected to said matrix resulting in a formation of a connecting region, and a second end region connected to said housing resulting in a formation of a fastening region.

4. The honeycomb body according to claim 1, wherein:

said at least one contraction limiter and said matrix have a common connecting region; and

said matrix has walls connected to one another by joining connections, the tensile stress being applied through said common connecting region and corresponding at most to an average strength of said joining connections of said walls to one another and/or to an average strength of said walls themselves.

6. The honeycomb body according to claim 1, wherein said at least one contraction limiter and said matrix have a common connecting region, said common connecting region is disposed close to an end side of said matrix.

7. The honeycomb body according to claim 1, wherein said matrix and said housing define an annular gap therebetween and surrounding said matrix, and said at least one contraction limiter seals said annular gap surrounding said matrix.

8. The honeycomb body according to claim 1, wherein:

said matrix has a circumference; and

said contraction limiter is one of a plurality of contraction limiters disposed axially one behind another, with an offset with respect to one another in a direction of said circumference of said matrix.

9. The honeycomb body according to claim 1, wherein said at least one contraction limiter and said matrix are formed from different materials.

10. The honeycomb body according to claim 1, wherein said matrix is thermally insulated with respect to said housing.

11. The honeycomb body according to claim 1, wherein said at least one contraction limiter has a coefficient of thermal expansion which is different from said matrix.

12. The honeycomb body according to claim 1, wherein said matrix has walls formed of at least partially structured sheet–metal foils stacked and/or coiled forming channels through which a gas can flow.

13. The honeycomb body according to claim 12, wherein said matrix is at least partially surrounded by an outer structured foil.

14. The honeycomb body according to claim 12, wherein said sheet-metal foils have a thickness of less than 0.06 mm.

15. The honeycomb body according to claim 12, wherein said matrix has a channel density greater than 600 cells per square inch.

16. The honeycomb body according to claim 1, further comprising a catalytically active coating disposed on said matrix.

17. The honeycomb body according to claim 1, wherein said at least one contraction limiter has means for preventing crack propagation.

18. The honeycomb body according to claim 12, wherein said sheet-metal foils have a thickness of less than 0.03 mm.

19. The honeycomb body according to claim 12, wherein said matrix has a channel density greater than 1000 cells per square inch.

20. The honeycomb body according to claim 12, wherein said matrix is at least partially surrounded by an outer structured foil that at least partially forms said at least one contraction limiter.

21. The honeycomb body according to claim 6, wherein said common connecting region is disposed a distance to said end side of said matrix in a direction of an axis of said matrix.

22. The honeycomb body according to claim 21, wherein said distance to said end side is less than 20 mm.

23. The honeycomb body according to claim 21, wherein said distance to said end side is less than 10 mm.

24. The honeycomb body according to claim 8, wherein said plurality of contraction limiters are flexible in a direction of an axis of said matrix for allowing a free axial contraction and expansion of said matrix.

25. The honeycomb body according to claim 1, wherein the honeycomb body is used in an exhaust system of an internal combustion engine.

26. The honeycomb body according to claim 1, wherein said matrix is a metallic matrix.

27. The honeycomb body according to claim 1, wherein the average initial diameter of said matrix decreases by at most 2% during and/or after the thermal stress.

28. The honeycomb body according to claim 1, wherein said at least one contraction limiter is a single–piece corrugated foil encircling said matrix.

29. The honeycomb body according to claim 1, wherein said at least one contraction limiter is affixed to said matrix at a vicinity of a longitudinal end of said matrix.

Evidence Appendix:

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or any other evidence has been entered by the Examiner and relied upon by appellant in the appeal.

Related Proceedings Appendix:

No prior or pending appeals, interferences or judicial proceedings are in existence which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in this appeal. Accordingly, no copies of decisions rendered by a court or the Board are available.